

(d) *Strength.* The front-end structure must be capable of withstanding the horizontal forward static load specified in either paragraph (d) (1) or (2) of this section.

(1) For a front-end structure less than 6 feet in height, a horizontal forward static load equal to one half ( $\frac{1}{2}$ ) of the weight of the cargo being transported on the vehicle uniformly distributed over the entire portion of the front-end structure that is within 4 feet above the vehicle's floor or that is at or below a height above the vehicle's floor at which it blocks forward movement of any item of the vehicle's cargo, whichever is less.

(2) For a front-end structure 6 feet in height or higher, a horizontal forward static load equal to four-tenths (0.4) of the weight of the cargo being transported on the vehicle uniformly distributed over the entire front-end structure.

(e) *Penetration resistance.* The front-end structure must be designed, constructed and maintained so that it is capable of resisting penetration by any item of cargo that contacts it when the vehicle decelerates at a rate of 20 feet per second per second. The front-end structure must have no aperture large enough to permit any item of cargo in contact with the structure to pass through it.

(f) *Substitute devices.* The requirements of this section may be met by the use of devices performing the same functions as a front-end structure, if the devices are at least as strong as, and provide protection against shifting cargo at least equal to, a front-end structure which conforms to those requirements.

(g) *Exemptions.* The following motor vehicles are exempt from the rules in this section:

(1) A vehicle which is designed and used exclusively to transport other vehicles, if each vehicle it transports is securely tied down by devices that conform to the requirements of § 393.102.

(2) A pole trailer or semitrailer being towed by a truck tractor that is equipped with a front-end structure that conforms to the rules in this section.

(3) A full trailer being towed by a vehicle that is equipped with a front-end

structure that conforms to the requirements of this section for a front-end structure.

(4) A full trailer being towed by a vehicle that is loaded in such a manner that the cargo on the towing vehicle conforms to the requirements of this section for a front-end structure.

(5) The rules in paragraphs (d) and (e) of this section do not apply to a motor vehicle manufactured before January 1, 1974.

(h) *Effective dates.* Cargo-carrying motor vehicles which are not exempted by paragraph (g) of this section must conform to the rules in this section as follows:

If the vehicle was manufactured—	It must conform to the rules in paragraph—	On and after—
Before Jan. 1, 1974.	(a), (b), and (f) .....	October 1, 1973 or the date it was manufactured, whichever is later.
Before Jan. 1, 1974.	(c) .....	January 1, 1975.
On or after Jan. 1, 1974.	(a) through (f) inclusive.	The date it was manufactured.

Paragraphs (d) and (e) of this section do not apply to a motor vehicle that was manufactured before January 1, 1974.

## Subpart J—Frames, Cab and Body Components, Wheels, Steering, and Suspension Systems

SOURCE: 53 FR 49402, Dec. 7, 1988, unless otherwise noted.

### § 393.201 Frames.

(a) The frame of every bus, truck, and truck tractor shall not be cracked, loose, sagging or broken.

(b) Bolts or brackets securing the cab or the body of the vehicle to the frame must not be loose, broken, or missing.

(c) The frame rail flanges between the axles shall not be bent, cut or notched, except as specified by the manufacturer.

(d) All accessories mounted to the truck tractor frame must be bolted or riveted.

(e) No holes shall be drilled in the top or bottom rail flanges, except as specified by the manufacturer.

(f) Field repairs are allowed.